

GP1S30

Subminiature Photointerrupter

Features

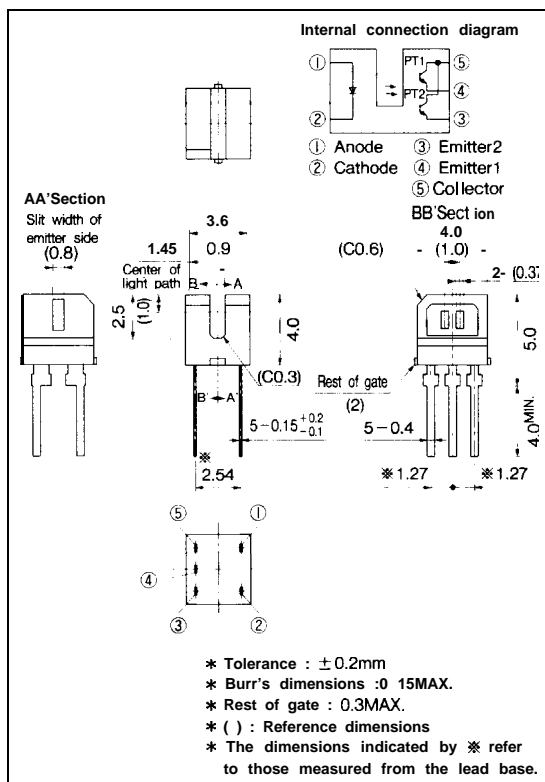
1. Compact package
2. PWB mouning type
3. Double-phase phototransistor output type for detecting of rotation direction and count
4. Detecting pitch : 0.6mm

Applications

1. Mouses
2. Cameras

Outline Dimensions

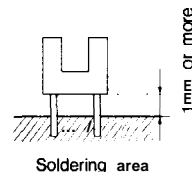
(Unit : mm)



Absolute Maximum Ratings

(Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	v
	power dissipation	P	75	mW
Output	Collector -emitter voltage	V_{CE10}	35	v
		V_{CE0}		
	Emitter-collector Voltage	V_{E1CO}	6	v
		V_{E2CO}		
	Collector current	I_C	20	mA
Collector power dissipation	P_c	75	mW	
Total power dissipation	P_{tot}	100	mW	
Operating temperature	T_{opr}	-25 to +85	°C	
Storage temperature	T_{stg}	-40 to +100	°C	
*Soldering temperature	T_{sol}	260	°C	



*1 For MAX. 5 wends

Electro-optical Characteristics

($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V_f	$I_F = 20\text{mA}$		1.2	1.4	v	
	Reverse current	I_R	$V_R = 3\text{V}$			10	μA	
Output	Collector dark current	I_{CE0}	$V_{CE} = 20\text{V}$	—	—	100	nA	
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 4\text{mA}$	250		1000	μA	
	Collector-emittersaturation voltage	$V_{CE(sat)}$	$I_F = 8\text{mA}, I_C = 125\mu\text{A}$	—	—	0.4	v	
	Response time	Rise time	t_r	$V_{CC} = 5\text{V}, I_C = 100\mu\text{A}$		50	150	μs
		Fall time	t_f	$R_L = 1000\Omega$	—	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

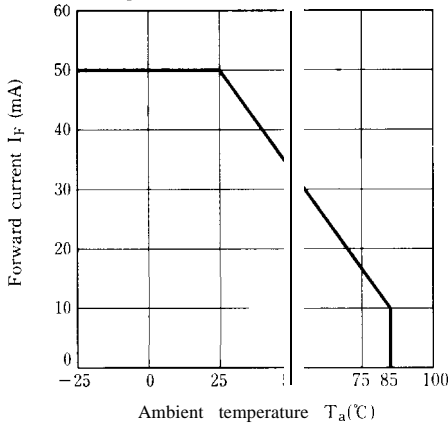


Fig. 2 Power Dissipation vs. Ambient Temperature

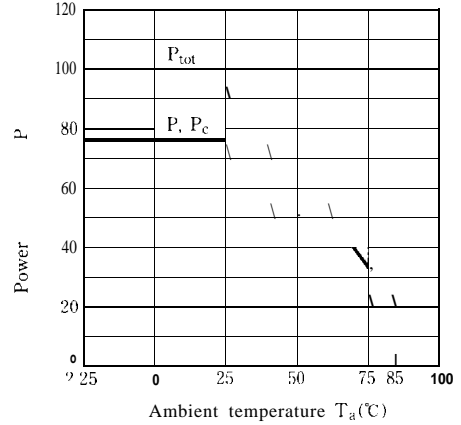


Fig. 3 Forward Current vs. Forward Voltage

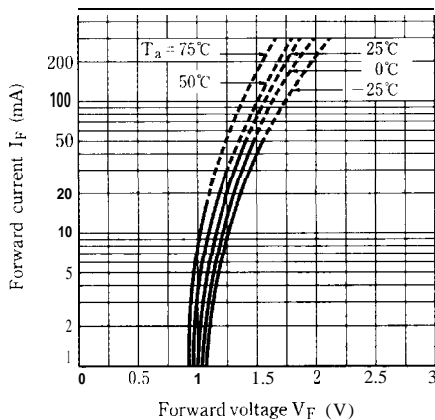


Fig. 4 Collector Current vs. Forward Current

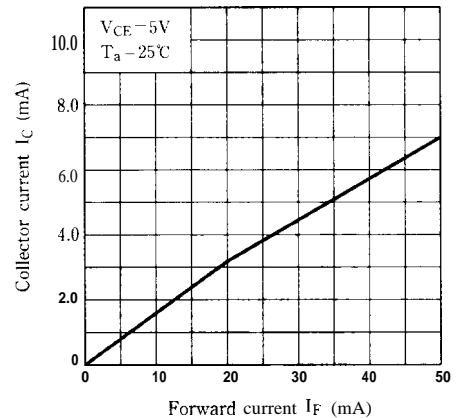


Fig. 5 Collector Current vs. Collector-emitter Voltage

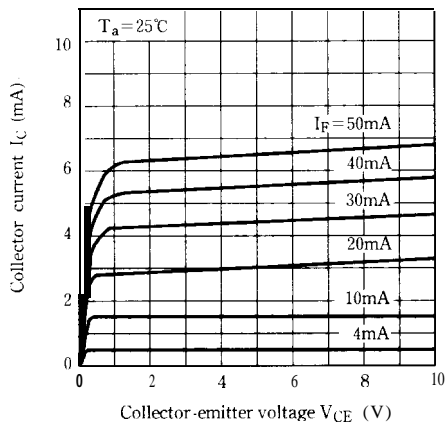


Fig. 6 Collector Current vs. Ambient Temperature

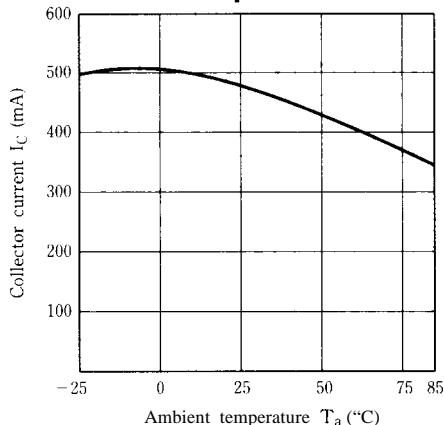


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

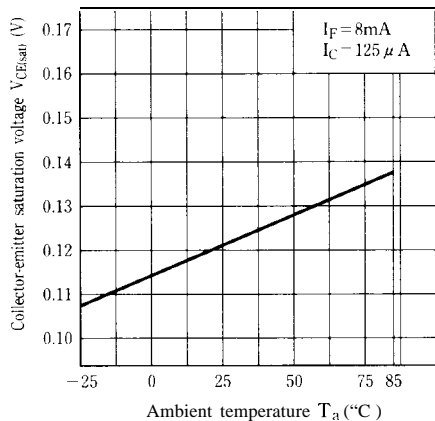


Fig. 8 Collector Dark Current vs. Ambient Temperature

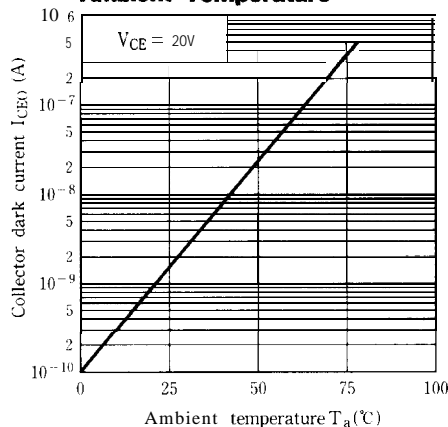
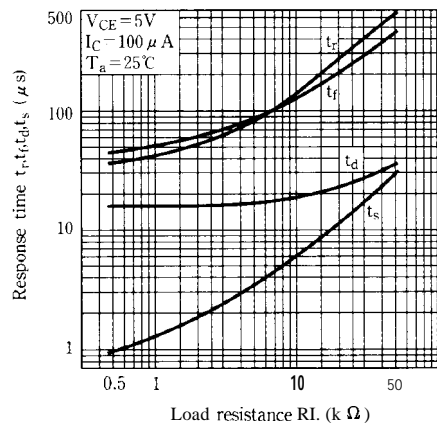


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

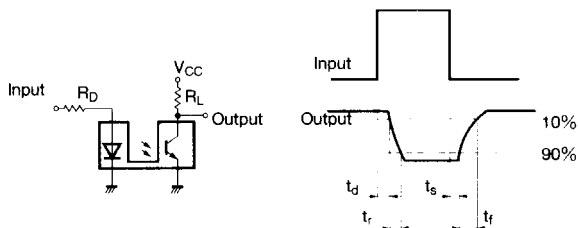


Fig.10 Relative Collector Current vs. Shield Distance (1)

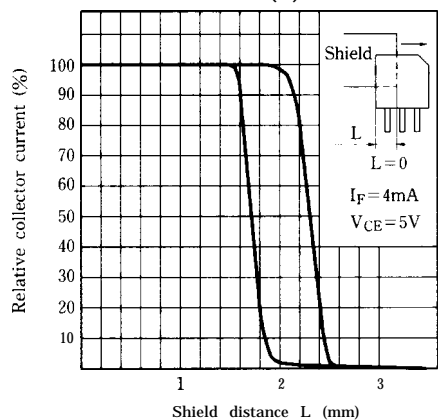
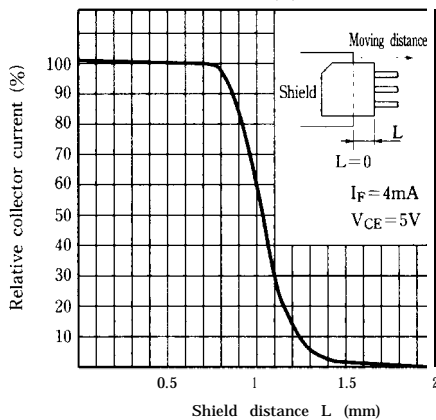


Fig.11 Relative Collector Current vs. shield Distance (2)



● Please refer to the chapter "Precautions for Use" (Page 78 to 93).